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ABSTRACT

Performance-based assessment provides an alternative identification method for young gifted children. A performance-based identification process was developed and implemented to select three-, four-, and five-year-old children for inclusion in a school for gifted children. Literature regarding child development, characteristics of young gifted children, and multiple intelligences theories was analyzed to determine observable behavior. Educators experienced in gifted education designed activities to elicit such behaviors. Activities were designed to include language experiences, musical and kinesthetic activities, math games, and curiosity projects. Social and emotional behaviors were observed as children participated in the activities. Information from development profiles and parental questionnaires was reviewed. Rating-scale information and anecdotal records from the performance-based assessment were analyzed to provide the rationale for individual student's admission into the gifted program. A study evaluating the effectiveness of the performance-based assessment program over 3 years indicated it was an effective tool for identifying young gifted children. Includes one table. (Contains 28 references.) (Author/SLD)

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Performance-Based Assessment: An Alternative Assessment Process for Young Gifted Children

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Abstract

Performance-based assessment provides an alternative identification method for young gifted children. A performance-based identification process was developed and implemented to select three, four, and five-year old children for inclusion in a school for gifted children. Literature regarding child development, characteristics of young gifted children, and multiple intelligences theories were analyzed to determine observable behavior. Educators experienced in gifted education designed activities to illicit such behaviors. Activities were designed including: language experiences, musical and kinesthetic activities, math games and curiosity projects. Social and emotional behaviors were observed as children participated in the activities. Information from developmental profiles and parental questionnaires was reviewed. Rating scale information and anecdotal records from the performance-based assessment were analyzed to provide the rationale for individual student's admission into the gifted program. A study evaluating the effectiveness of the performance-based assessment process indicated it was an effective tool for identifying young gifted children.

There is a need to reconceptualize definitions and assessment procedures for young gifted children (Barbour, 1992). The concept of giftedness has expanded beyond the traditional emphasis on academic powers (Nutall, Romero & Kalesnik, 1992). Many presently used methods of identification are not appropriate for use with young children. In an attempt to meet this need, The Ricks Center for Gifted Children has developed a form of performance-based assessment that is used to select three, four, and five year old children for participation in a gifted program. It is a component part of an identification process that includes referrals, information gathering, assessment, and selection; and then moves into curriculum development. This form of performance assessment is developmentally appropriate for young children as it is based on observations of children's interactions with the environment. The theoretical foundations stem from the identified characteristics of gifted young children (Kosak, 1985; Lewis & Louis, 1991; Lewis & Michaelson, 1985; Parke & Ness, 1988; Piechowski, 1991; Roedell, Jackson, Robinson & Ward, 1980); Piaget's (1969) developmental theory and observational methods; and Gardner's (1983) theory of multiple intelligences. A study was completed evaluating the effectiveness of the performance-based assessment process. Study results suggest this assessment is useful in identifying young gifted children to participate in the Ricks Center program.

Theoretical Foundations

Appropriate Assessment of Young Children

Identification of young gifted children using developmentally appropriate measures continues to be a challenge. Research indicates that standardized achievement tests may be developmentally inappropriate for young children in the content, format, and sustained attention span they require (Bredekamp & Shepard, 1987; Schweinhart, 1988). They may provide an inaccurate measure of young children's knowledge, skills, and abilities (Gnezda, Gaduque & Shultz, 1991). Practices that have become more common in early childhood programs such as observation of activity, examples of products, and parental input are more appropriate for assessment of young children (Barbour, 1992; Gnezda, Gaduque & Shultz, 1991).

Children at the preschool level interact with their environment physically as well as cognitively. According to the developmental theorist Piaget (1969), a child from ages two through seven is in the preoperational stage of development. With the acquisition of language, the child is able to represent the world through mental images and symbols. But in this stage, these symbols depend on his own perception and intuition. Young children may not use symbol systems to accurately represent what they know. Standardized tests which require a child to rely on symbol systems may not be appropriate.

Piaget (cited in Singer & Revenson, 1978) generated a

developmentally appropriate method to assess children's acquisition of mathematical concepts. Taking into consideration that young children may not be able to think abstractly or express thoughts verbally, he supplemented his method of research with young children to include tasks. He placed concrete materials such as buttons in front of children. Children were asked to complete tasks such as making identical rows of buttons. He then queried the children about their thinking regarding the development of the rows of buttons. By observing how children used the materials and their description of their interactions, Piaget formed conclusions about children's thinking.

An assessment using this observational approach is developmentally appropriate for young children as it allows children to demonstrate their abilities through interactions with the environment. It allows students to demonstrate their abilities without the use of symbol systems. It is both age appropriate and individually appropriate (Bredekamp, 1987).

Expansion of the Definition of Intelligence

Questions have been raised about the validity of using I.Q. scores as an indicator of intelligence (Gardner, 1983; Kamin, 1974; Sternberg & Davidson, 1986). Research by Gardner (1983) has shown that giftedness can be displayed in areas such as art, music, or even social skills. Gardner proposed there are seven intelligences existing relatively independently of one another that can be fashioned and combined in many different ways by individuals and cultures (Nuttall, Romero, & Kalesnik, 1992). The seven proposed intelligences are: linguistic, logical/mathematical, bodily-

kinesthetic, musical, spatial, interpersonal, and intrapersonal. Children might display abilities in one or more domains of the multiple intelligences (Ramos-Ford & Gardner, 1992).

Characteristics of Giftedness

Research has shown young gifted children possess characteristics that differentiate them from their peers. Characteristics distinguishing these children include extraordinary language ability, memory, abstract thinking, attention span, curiosity, interest, creativity, and social abilities (Hollinger and Kosak, 1985; Lewis & Louis, 1991; Lewis & Michaelson, 1985; Parke & Ness, 1988; Piechowski, 1991; Ramos-Ford & Gardner, 1991; Roedell, Jackson, Robinson & Ward, 1980).

Some of the abilities displayed by young gifted children transcend the different domains of intelligence. These abilities might be demonstrated in any of the domains of intelligence. These abilities include attention span, curiosity, creativity, interest, memory, and abstract thinking.

Young gifted children's attention spans and interests differ from the norm (Parke & Ness, 1988). They are able to concentrate for comparatively long periods of time on subjects that interests them. In many cases, they develop certain "passion" areas in which they are intensely interested (Parke and Ness, 1988).

Young gifted children are able to make associations and understand concepts that in many cases are considered too abstract for their age level (Piechowski, 1991; Roedell, Jackson & Robinson, 1980). They often have interesting, original ideas. They are able to see errors in logic,

discrepancies or differences in thinking, and they have the capacity to plan and carry out complicated activities (Parke & Ness, 1988).

Creativity is displayed by the ability to make interesting, original associations, by the innovative use of materials, or the capacity to develop original ideas (Parke & Ness, 1988). Displaying creativity in an intellectual domain is considered by some to be an indication of giftedness. However, the relationship between creativity and giftedness is one that has not yet been made explicit. For some, the creatively gifted form a separate category of gifted students. For others, creativity is one of the fundamental components of giftedness (Callahan, 1991). For the purposes of this assessment, creativity was not considered a fundamental component of giftedness, but an ability that could be displayed in any of the different intellectual domains.

Young gifted children may also exhibit advanced abilities in the different domains of intelligence. Young gifted children may demonstrate a high level of language development and advanced vocabularies as an indicator of linguistic intelligence. Lewis and Michaelson (1985) found this linguistic ability can be manifested in a number of different ways: 1) advanced vocabulary; 2) use of language in a meaningful ways; 3) richness of expression, elaboration, fluency; 4) a high frequency of questions. As an indicator of logical/mathematical intelligence, children exhibit advanced problems solving abilities, skill in sorting or classifying, or the ability to predict patterns. Intelligence in the spacial domain is indicated by a facility with puzzles, mazes, or an ability to manipulate shapes. Children express

bodily-kinesthetic intelligence by moving expressively in response to different musical and verbal stimuli or by demonstrating keen athletic ability in organized sports or in unorganized play. Children with musical intelligence display a sensitivity to rhythms and timbres, sing to themselves while working, and are aware of sounds in the environment (Ramos-Ford & Gardner, 1991).

Interpersonal or intrapersonal intelligence is displayed by advanced social skills, the ability to understand other individuals, or an understanding of self (Ramos-Ford & Gardner, 1991). A number of advanced social skills are found in some young gifted children. They seem to develop social knowledge earlier than their nongifted peers (Lewis & Michaelson, 1985). Many young gifted children tend to interact more with older children and adults than other children their own age. They have the ability to express emotions appropriately and express opinions spontaneously, which are indicators of intrapersonal intelligence.

The Assessment Process

This performance-based assessment addresses the problems identified in the literature by using developmentally appropriate tasks designed to elicit behaviors based on the characteristics of giftedness and multiple intelligences theory. Trained teachers use analogue observations of children interacting with concrete materials in learning centers. Analogue observations occur in a controlled environment that attempts to stimulate specific behaviors. They are time efficient because they are structured to increase the likelihood a target behavior will be observed (Nutall, Romero &

Kalesnick, 1992).

Teachers who participate in the assessment have graduate level training in the education of young gifted children and experience working with these children. Teacher-observers keep anecdotal notes and rating scale information regarding each child's participation in the centers. A minimum of two teachers are at each center, one interacting with the children and one keeping notes regarding each child's participation.

The rating scale consists of a list of behaviors indicative of intelligence in each domain and behaviors indicating characteristics of giftedness that might be displayed across the domains of intelligence. Children are rated on three levels: not evident, evident, or extremely evident. These levels indicate the degree to which the behavior is indicative of the child being observed. This format allows the teacher-observers to identify areas of strength in children as the teachers observe the children's interactions with the environment. The activities used in the learning centers are not static. Activities have been defined and modified as the process has evolved. Examples of activities used in learning centers include:

Logical - Mathematical

In this center, the children have the opportunity to interact with numbers, shapes, and colors. Children can interact both kinesthetically and cognitively. By jumping onto construction paper shapes in various colors, they can demonstrate sorting ability. One to one correspondence can be used in counting objects. Open-ended questions assess innovative application and abstract thought. The teacher-observers note mathematical

abilities such as ordering things according to their relative differences, constructing numerical and classificatory relationships, and problem-solving skills.

Linguistic

The teacher begins this center by reading a big picture book to a small group of children. The children predict what they think will happen in the story, thereby displaying their ability to predict outcomes. Children work one on one with a teacher creating their own story out of playdough or using a play family and house. As each child relates his or her story, teacher-observers keep track of the child's ability to expand on a story line and use descriptive phrases. The teacher-observers delineate the child's ability to use advanced dialogue, ability to elaborate, and richness of expression.

Creativity

This station provides different opportunities to express creativity through the making of interesting, original associations and the inventive use of materials. Children have the opportunity to create pictures using glue, marker, feathers, sparkle, and paint. Puppets are available for children to role-play and create stories. The teacher-observers note the children's imaginative use of materials and their interest in the different areas.

Interpersonal/Intrapersonal

This intelligence is assessed by the teachers observing child/child, parent/child, and educator/child interactions. An activity is set up in which parents and children can cooperate in making a snack of apples, peanut butter, and raisins in the shape of a face. Children have the

opportunity to display abilities to interact with adults and other children by helping others with the directions and sharing materials. Leadership skills and ability to work with other children and adults such as following and leading comfortably, obtaining and holding the attention of adults and children in socially acceptable ways, and expressing opinions spontaneously are noted. Intrapersonal skills such as expressing emotions appropriately and talking about personal strengths and weaknesses are noted in this center, as well as in the other centers.

Bodily-Kinesthetic/Musical

A balance beam and musical instruments are available in this center. Music is playing and children have the opportunity choreograph a dance. Teacher/observers note the children's sensitivity to musical rhythms and timbres, their awareness of sound in the environment, ability to express emotions through movement, and their coordination of body movements.

Curiosity/Spacial

This center contains many participatory activities for children. Spacial ability is assessed by allowing the children opportunity to manipulate and build with blocks, copy designs, and complete mazes. At this center, many different types of building materials are available: blocks, tanagrams, and puzzles. This intelligence is demonstrated by the ability to work with materials, copy designs, and by taking things apart and putting them back together.

This center also contains an experiment in which children can participate in completing. Curiosity is assessed, in this center as well as

others, by the questions children ask about the experiment as it is performed.

The assessment period lasts one hour. Firm time limits for interaction in each center are not established. Most children spend some time at each station. They seem very comfortable with the process and interact with the teachers extensively. Teachers keep in mind that some children are introverted and some extroverted. Observations are made of how intently a child is listening and observing. Teachers observe children's interactions with parents and others.

After the assessment, the teachers and administrators compile their notes. Profiles of individual children emerge during this process. Some children spend a long time at the curiosity table, asking endless questions and trying to discover why the water turns red in the experiment. Some demonstrate a passion for individual areas. Some build intricate block towers and explain in detail how they were built. Some find innovative and creative ways to use the materials. In this type of assessment, children have the opportunity to demonstrate their giftedness in their own individual ways.

Decisions on placement within the school are made considering the match between the needs of the child and the educational programming offered. The school in which this assessment takes place offers an interdisciplinary program designed to meet the individual needs of gifted children. Children are placed in multi-aged classrooms and taught through thematic curriculum. The school individualizes each child's curriculum

according to his or her educational needs. Child-centered, individualized assessment is used to establish a present performance level and determine the most appropriate learning environment for each student. Each child has their own Individual Education Plan that drives curriculum development for that child. The performance assessment is considered as one piece of information in a multifaceted approach to identification. Developmental information, parent perception, and child interactions are also part of the identification process.

Evaluation of the Assessment

Evaluation of the assessment has been both qualitative and quantitative. Interviews, observations, and data analysis have been ongoing throughout the three years in which this assessment process was used. Results of interviews with parents and teachers, observations of students, analysis of student work, and statistical analysis of rating scale data suggest this assessment is an effective identification tool.

Interv'ews with parents indicated both parents and students were happy with the gifted program. Parents reported their children were well-placed and thriving in the environment provided. They felt the educational needs of their children were being met.

Interviews with teachers demonstrated similar results. Children who were placed in their classrooms using performance-based assessment information had integrated well. The teachers felt the children were socially and academically well-matched with the program being offered.

It was concluded, based upon observations of the students, that they

were correctly placed in the program. They interacted socially with the other students. They could competently complete the tasks assigned to them. Their work and Individual Education Plans demonstrated the signs of giftedness noted in the performance assessment.

At midyear, teachers were asked to rate children according to the same criteria used during the assessment process. Content analysis of both rating scales, those used during the initial assessment period and those used at midyear, demonstrated that children who displayed particular strengths during the performance-based assessment period, demonstrated similar strengths at mid-year. Children who displayed strong verbal abilities during the performance assessment, for example, continued to display these same abilities during the year in their work and classroom behavior.

Also, quantitative analysis suggested the rating scale information was predictive of future performance. Mean differences between the two rating scales were minimal. The first assessment mean was 3.67 and the second assessment mean was 3.74 (see Table 1). A simple regression analysis was completed comparing the original rating scale data to mid-year rating scale data (n= 35). The regression analysis demonstrated that the original performance data was an accurate predictor of mid-year performance. Table 1 displays the means and standard deviations of the two assessments, unstandardized regression coefficient (B) and intercept, and the standardized regression coefficient ( ). R for regression differed significantly from zero, F (1, 34) = 4.951, $p < .03$.

Table 1

Variables	Mean	Standard Deviation	B	
First Assessment	3.664	.606		
			2.737	.357
			intercept=.275	
Second Assessment	3.746	.606		

$p < .03$

Both qualitative and quantitative data gathered regarding this performance-based assessment process supports its usefulness in identifying young gifted children for participation in the Ricks Center program. Data continues to be gathered and evaluation will be ongoing. Areas of further study include further definition of assessment activities, comparison of this process with standardized assessment data, and collection of additional longitudinal data.

Conclusions

This type of assessment suggests a broader definition of giftedness and allows access to gifted programs to children who demonstrate giftedness in areas not represented by traditional measures. It allow educators to look for *signs of giftedness* rather than the *gifted child* (Feldhusen, 1989).

An assessment based on observation is developmentally appropriate for young children as it allows them the opportunity to interact concretely with the environment. Children of this age interact with their environment through exploration and manipulation.

As with any assessment, performance assessment such as the one described is not perfect. Care must be taken by those using this type of assessment that the observers are familiar with the characteristics of the gifted, the developmental levels of children, and the theory of multiple intelligences. Children of three will interact much differently than children of four. Children are first and foremost individuals who will demonstrate their giftedness in individual ways. More extroverted children might be more able to display their gifts during this type of assessment procedure. Children who are talkative and animated could possibly make a better impression on the examiner. Children who intently listen and observe before acting can also demonstrate giftedness.

The advantages to this type of assessment outweigh the disadvantages. Performance assessment should continue to be developed and improved as a part of the identification process for gifted and talented children. An assessment of this type can enable the identification of gifted young children thereby allowing the early opportunity for appropriate placement. Appropriate placement permits young children to receive the type of differentiated educational program suitable for them. It allows a match between educational programming and student needs. This type of assessment can help to expand the current definition of giftedness to include all the types of gifts that children possess, not only general academic competence, and allow all gifted individuals access to appropriate programming.

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